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## RESEARCH ARTICLE

### Barriers of Cataract Surgery in South Timor Tengah, East Nusa Tenggara-Indonesia

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#### Abstract:

#### Background:

WHO shows that cataract is a major cause of avoidable blindness. The Purpose of this research is to find data related to blindness and visual impairment caused by senile cataracts. Barriers of cataract surgery in patient with senile cataract is a very favorable factor in this study.

#### Method:

Study design using cross-sectional method, data were collected from Ume Manekan Hospital November 2017. Assessment was done by clinical ophthalmologist evaluating the characteristics, type of cataract, visual acuity, and barriers to cataract surgery.

#### Result:

Total subjects in this study are 109. Prevalence of mature cataract is 55 (51%). Barriers most cataract surgery in this study is the inability of the community to pay the cost of surgery 54 (49.5%), followed by the lack of access to treatment that is 33 (30%), fearing the results of operations 15 (13.8%) and felt that treatment is not needed 7 (6.4%). The category of most vision loss in the operated eye was found in the blindness group (<3/60), 100 (91.8%) and followed by Severe Visual Impairment category (9/ 60-3 / 60) (8.2%).

#### Conclusion:

Eye health system that must be well prepared at the level of regional holder considering the number of blindness due to high enough cataracts in TTS Timor Tengah Selatan district.

**Keywords:** Barrier, Blindness, Cataract, Elderly, Rural Area, Senile.

#### Article History

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## 1. INTRODUCTION

Blindness is a health problem, especially in eye health. WHO data showed that cataract is the main cause of blindness which can be prevented in 20 million people in the world or about 51% of the total avoidable blindness disease [1 - 3]. The etiology of cataract are multifactorial. It often correlated with the aging process. The cataract process can also be caused by congenital, trauma, infection, others eye disease, and post-surgery eye [4, 5].

Senile cataract is a turbidity process in the lens that is correlated with aging. Senile cataract is a cataract that caused by the aging process which starts in age more than 50 years old [3]. Senile cataract is the most common type of cataract. The estimation of prevalence cases is 90% from all of the cataract cases [6, 7]. The therapy of senile cataract is surgery. Mature cataract phase is better to do the surgery as soon as possible. Another serious complication can caused by the delayed time of surgery [8 - 10].

Study conducted by Tana *et al.* found that the numbers of cataract surgery in Indonesia are still low. The data showed that surgery number of cataract in Sumatera is 14% of the total of cataract cases in that area, in the east area of Indonesia there

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are 20.1% of total cataract cases [11 - 13]. The low number of cataract surgery is caused by some barriers such as the minimum of the citizen knowledge about cataract treatment, the wrong perception about cataract therapy [14 - 16].

There are only few studies about the barriers of cataract surgery. A study that based on community needs so many funds and long time to evaluate. This study is planned to be done in social service at South Timor Tengah regency, East Nusa Tenggara. This social service program is a routine program done by Perdami Bali and Ophthalmology Department of Udayana University/ Sanglah Hospital Denpasar which collaborates with Besipae local civil society organizations.

This study using Rapid Assessment of Avoidable Blindness (RAAB) questionnaire, the data will collect in senile cataract patient age more than 50 years old [10]. The criteria of 50 years old are used because cataract in this age is already disturbing daily life activity and the vision category already in blindness or severe visual impairment (SVI) category based on World Health Organization (WHO) criteria.

Limburg's study showed that there are many factors (barriers) which cause the senile cataract patient doesn't get the surgery [17, 18]. That barriers are 1) do not feel the need of the surgery yet, 2) fear of the surgery result, 3) the expensiveness of cataract surgery, 4) the rejected of cataract surgery by the health service, 5) doesn't know that cataract can be cured, 6) can't reach the appropriate health service, and others local factors such as culture and gender factor [12 - 14].

South Timor Tengah is one of the East Nusa Tenggara regency. The capital city of South Timor Tengah is Soe. The area of South Timor Tengah regency is 3.948 km<sup>2</sup> with total population 459.310 people and the population which more than 50 years old are around 82.675 people [19, 20]. The ophthalmology health service in South Timor Tengah regency is done by 1 ophthalmologist in South Timor Tengah Hospital. The purpose of this study is to know about the prevalence of vision disorder and barriers of cataract surgery in senile cataract population at South Timor Tengah regency, East Nusa Tenggara.

## 2. MATERIALS AND METHODS

This study is an observational analytical study with cross-sectional design. The data were collected prospectively by visiting the Ume Manekan Hospital of South Timor Tengah Regency. The data that was collected are the characteristic of senile cataract patient including visual acuity, anterior and posterior segment examination, and questionnaire with question about the barriers to do the cataract surgery.

The study held at Ume Manekan Hospital, South Timor Tengah regency, East Nusa Tenggara from 1<sup>st</sup> – 31<sup>st</sup> November 2017. The target population of this study is all senile cataract patients at Ume Manekan Hospital, South Timor Tengah Regency.

The sample of the study is all senile cataract patients at Ume Manekan Hospital who fulfilled the inclusion and

exclusion criteria. The inclusion criteria are senile cataract patient who visits Ume Manekan Hospital in November 2017, the patient who wants to follow the study and sign the informed consent. The exclusion criteria are senile cataract patient with visual acuity in early visual impairment and moderate visual impairment category, inability to communicate well. The assessment started by anamnesis of the complaint, anterior and posterior eye examination by widening the eye. Fulfilling the questionnaire about barriers of the cataract surgery. This questionnaire is adopted the RAAB survey questionnaire which already recommended by WHO in eye community studies.

The variable classification and identification are age, gender, health history, trauma history, and eye examination variable (vision acuity, anterior and posterior segment examination, and cataract surgery barriers questionnaire). The measurement tools are anamnesis sheet, eye examination sheet, and barriers RAAB questionnaire. This study has administered the ethics commission agreement from ethical committee Faculty of Medicine, Udayana University.

Statistic data analysis is all data which is entered to the work table and analyzed by SPSS version 17.0 program. The data about the subject characteristic was analyzed descriptively. Categorical data were described in frequency and percentage form. Meanwhile, numerical data was divided and got ordinal data to facilitate the data analysis. Data analysis steps are data selection which is editing, coding, and tabulation was entered to the navigator file of SPSS program and descriptive statistical analysis.

The general characteristic and frequency variable distribution are age, gender, education, job, income, vision acuity, diagnosis and cataract surgery barriers. The result of the study will explain in narrative and table form.

## 3. RESULTS AND DISCUSSION

This research is a pilot study to find the patient characteristics and barriers of cataract surgery in South Timor Tengah Regency, East Nusa Tenggara. The total number of subjects was 109 people who treated for cataract surgery. This study found that most of the senile cataract patients are men; as many as 65 people (59%) followed by women as many as 44 people (40%). Senile cataract commonly suffered by people aged 60-69 years, as many as 41 people (37%) followed by ages 70-79 years as many as 28 (25.68%). The smallest rate of the cataract surgeries was done in people at the age of 80-89 years (9.74%). This finding in line with study conducted by Daien (2012) in France which found the highest rate of cataract surgery was done at 60 – 69 years of age and the lowest rate was done at 80 – 89 years old [16, 21, 22].

The proportion of bilateral senile mature cataract is 56% (61 people). It provides an illustration of blindness occurs in people who come to cataract surgery are bilateral blindness in both eyes and will affect their daily lives [23 - 25]. It makes a wrong perception in the community. Most of the cataract patients are suffering from senile mature cataract as many as 55

Table 1. Baseline characteristics.

Characteristics	Total (N)	Percentage
<b>Sex</b>		
Male	65	59.61%
Female	44	40.32%
<b>Age</b>		
40-49 years old	15	13.76%
50-59	15	13.76%
60-69	41	37.61%
70-79	28	25.68%
80-89	10	9.74%
<b>Laterality of Cataract</b>		
Right eye (OD)	33	30.27%
Left eye (OS)	15	13.76%
Bilateral (ODS)	61	55.96%
<b>Senile cataract type</b>		
Immature senile cataract	44	40.36%
Mature senile cataract	55	50.45%
Hyper mature senile cataract	10	9.17%
<b>Visual impairment</b>		
Blindness (<3/60)	100	91.8%
Severe Visual Impairment (<6/60-3/60)	9	8.2%
Moderate Visual Impairment (<6/18-6/60)	0	0%
Early Visual Impairment (<6/12-6/18)	0	0%
<b>Cataract surgery Barriers</b>		
Inability to achieve the surgery cost	54	49.54%
Do not feel the need for the surgery yet	7	6.4%
Fear about surgery result	15	13.76%
Limited access to health service	33	30.27%

people (51%), followed by senile immature cataract as many as 44 people (40%) and hyper matured cataract as many as 10 people (9%). The majority of visual impairment are blindness (visual acuity <3/60) as many as 100 cases (91.8%) then followed by severe visual impairment (visual acuity <6 / 60-3 / 60) as many as 9 cases (8.2%) (Table 1).

The most cataract surgery barriers in this study were the inability of the community to achieve the surgery costs (49.5%) followed by limited access to health service as many as 30%, fear of poor surgery results (13.8%), and do not feel the need of treatment (6.4%). Based on these findings, inability of the community to achieve the surgery cost can be a suggestion for the Regional Government to include a cataract surgery program in national insurance. National insurance (BPJS) has insured cataract surgery, but BPJS for cataract surgery in South Timor Tengah regency is still in the formulating process between hospital and local government regulation. Another barrier of eye health programme in South Timor Tengah regency was the only ophthalmologist in town moved to West Nusa Tenggara; it makes the cataract surgery insurance program unable to run.

Senile cataract patients at Soe, South Timor Tengah regency have treated with cataract surgery in the nearest district which had an ophthalmologist. They traveled approximately 3 hours to reach the ophthalmologist. The participation of ophthalmologists and cataract service program in

Soe, East Nusa Tenggara are important factors to eradicate blindness due to senile cataract.

## CONCLUSION

The prevalence of mature cataracts in this study was 55 (51%). The majority of cataract surgery barriers in South Timor Tengah, East Nusa Tenggara were the inability to pay the operating costs 49.5%. The importance of an ophthalmologist at Soe, South Timor Tengah Regency or the existence of cataract social service program is important to eradicate blindness in Soe due to senile cataract. Further research is needed on monitoring and evaluating social services for cataract surgery in this province.

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## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval has been given by Ethical Commission of Udayana University/ Sanglah General Hospital.

## HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All human research

procedures followed were in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

### CONSENT FOR PUBLICATION

Written informed consent was obtained from all the participants prior to publication.

### CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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